

ROCK PAINTINGS OF THE YINGALARRI REGION: PRELIMINARY RESULTS AND IMPLICATIONS FOR AN ARCHAEOLOGY OF INTER-REGIONAL RELATIONS IN NORTHERN AUSTRALIA

BRUNO DAVID, MAREE DAVID, JOSEPHINE FLOOD AND ROBIN FROST

David, B., David, M., Flood, J. and Frost, R. 1990 08 31: Rock paintings of the Yingalarri region. preliminary results and implications for an archaeology of inter-regional relations in northern Australia. *Memoirs of the Queensland Museum* 28(2): 443-462. Brisbane, ISSN 0079-8835.

Recent research in Wardaman country, Northern Territory, has revealed an extremely varied body of cave paintings. Preliminary investigations of painting techniques from 48 sites located around the Yingalarri waterhole has failed to identify any significant changes in the distribution of rock paintings from the region through time. Given that intensive interactions between Wardaman people and their westerly and southerly neighbours have been repeatedly documented in the anthropological literature for the recent past, and that the distribution of rock art does not indicate any significant changes in the pattern of inter-regional relations, we conclude that these contacts have considerable antiquity. □ *Rock art, cave paintings, Wardaman, Northern Territory, intensification, Australian prehistory.*

Bruno David, Department of Anthropology and Sociology, University of Queensland, Queensland 4072, Australia; Maree David, 3 Seaman Avenue, Villawood, New South Wales 2163, Australia; Josephine Flood, Australian Heritage Commission, P.O. Box 1567, Canberra, Australian Capital Territory 2601, Australia; Robin Frost, 464 Greenwich Street, New York, U.S.A.; 24 November, 1989.

It was once customary to view the Australian Aboriginal past as consisting of a series of distinct *episodes* of prehistory, each observable archaeologically as made up of a distinct and relatively discrete set of material artefacts. For example, the early 'Core Tool and Scraper Tradition' has been seen to consist of large artefacts often characterised by steep edges and percussion flaking, and followed by the 'Small Tool Tradition' which, amongst other things, saw the beginnings of pressure flaking and blade technologies. Each Tradition was seen as an internally coherent system of artefactual production (and use), and each implied a system in steady-state equilibrium (cf. McCarthy, 1967; Mulvaney, 1975).

In the late 1970s and early 1980s a dissatisfaction with culture-historical approaches to Aboriginal prehistory began to appear in the literature (e.g. Lourandos, 1983). These dissatisfactions stemmed from the failure of such approaches to address issues which concern social *processes*. For this reason, archaeology has been, until recently, more concerned with *documenting* material aspects of Aboriginal life, and *ordering* the resultant classifications in structural-functional terms, than in trying to understand how these structures came to be. Cultures were seen as made up of interacting parts, each part at

once functionally and structurally contributing to the formation of an *integrated* whole. This is the case not only for the archaeological 'traditions' which investigators claimed to have identified, but also for the alliance and trading systems documented ethnographically (and which by implication operated in the past) (e.g. McCarthy, 1939). This, to a large extent, is testimony to the influence of Radcliffe-Brown's work on Australian archaeology (and Australian anthropology in general). It also highlights a tendency which has prevailed amongst archaeologists to treat prehistoric Aboriginal systems as ecologically adaptive ones, whilst ignoring the role that socio-cultural relations have played in socio-cultural change and stability. Humans interact with each other, create and re-create social and individual identities (creations of a symbolised self *in relation to 'the other'*) observe and break social rules, and in the process create the *dynamic* environments which we study. It is not just in 'the norm', in people frozen in time and space, that we can hope to understand the past, but by inquiring into the social forces which influence people's behaviour, and consequently structure social change. It is only thus that we may arrive at an understanding of those forces which have shaped the prehistoric past (and, consequently, the

present). Yet it is the very dynamism of Aboriginal peoples which for a long time has been neglected, even denied, in early works.

In this paper we therefore wish to argue that, in spite of the difficulties involved in addressing questions of social relations and *social* change in archaeology, such issues should not only be addressed, but should be central in our inquiries of the past. We illustrate this issue by reference to our own research in *Wardaman* country, Northern Territory, by looking at the rock paintings of the Yingalarri region. Here, a rich and varied body of rock art is analysed with respect to the information it can supply on inter-group relations, both past and present. It is concluded that not only have extensive alliance networks been established in the region, but also that such networks have probably been operating for a very long time, although the particular configuration of alliances may or may not have changed significantly during this time.

WARDAMAN COUNTRY

The Yingalarri waterhole is located towards the heart of Wardaman country, approximately 130km southwest of Katherine, Northern Territory. Wardaman country currently extends from the Victoria River to the west, the southern Flora River to the northwest, Scott Creek in the northeast, and Romula Knob in the east (Merlan, 1988, p.3). Their country is made up of a configuration of territories to which people are affiliated in numerous ways, but where patri- and cognatic affiliation are of primary importance. It is in relation to the Dreaming that these affiliations to the land are given meaning and identity.

Although identified with the region delimited above, Wardaman people have wide-ranging associations with peoples sometimes hundreds of kilometres from their homelands. For instance, Stanner (1959-63) reports seeing a Wardaman man visiting the Port Keats region, 250km from Wardaman country, early this century. In this meeting, he records a Wardaman version of the Rainbow Serpent story, and shows its great similarity to versions recorded west-northwest of Wardaman country. In effect the story itself links Wardaman places with regions all the way to Port Keats, incorporating places such as Garnawala (Mt Hogarth), Murning and Nimji (both near the Yingalarri waterhole) into the story line. Some of the actors in the Rainbow Serpent story go on to participate in other Dreaming stories, and although some stories appear unrelated to others,

it is in the Dreaming itself that the whole landscape is linked into a broad configuration of sites each expressing a broader ideological system. It is this organising of the landscape, via the identification of localised Dreaming beings and events, which articulates the relation of people to the land. As a result, the landscape cannot just be seen as comprising autonomous units in space, but must be understood also as expressing a broader ideological system in continuous social space.

Extensive interactions of Wardaman with peoples to the west and south have been documented by Merlan (1988), Davidson (1935) and Spencer (1914). Davidson has noted recent trading relations with people to the west, whilst Merlan (1988) notes that there is much evidence for extensive inter-marriage between Wardaman, Mudburra, Bilinara and Garranga peoples to the south, and Ngariynman, Ngaliwurru, Jaminjung and Nungali peoples to the west and southwest (see Fig. 1). These inter-regional links echo favourably the patterning of

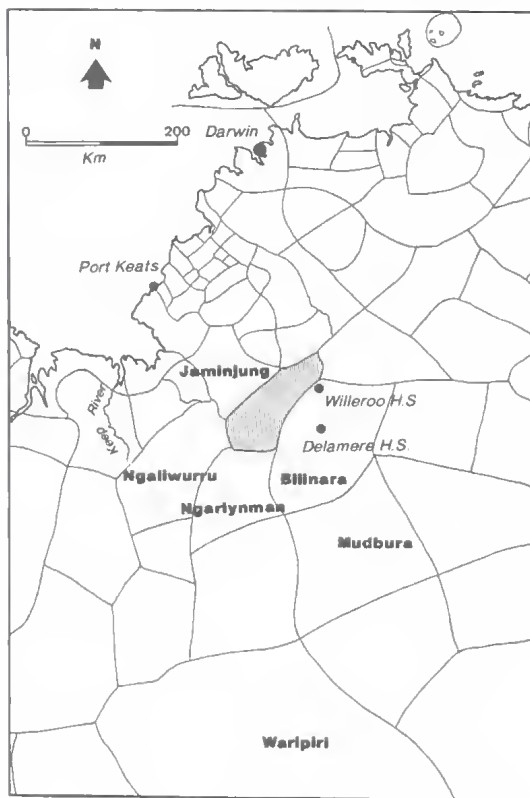


FIG. 1. Distribution of linguistic groups mentioned in text. After Tindale (1974).

linked Dreaming places, such as the Rainbow Serpent and Lightning Brothers stories, which show an extensive network of relatedness between Wardaman country and places to the west and south. In the case of the Lightning Brothers, although the main participants in the story, Jabirringgi and Yagjagbula, are said to be from Yiwarlarlay itself (and not to have come from anywhere else), the frogs and rain (*wiyan*) associated with the story are said to have come from the south, watching the brothers fight. In this case, the Yiwarlarlay site and its associated story are extremely significant to both Mudburra and Warlpiri peoples of the south (Walsh, 1988). Further links with the south are implied in that Warlpiri, Mudburra and Wardaman peoples, amongst others, all share a similar 8-class kinship system (along with a similar terminology), as well as the practice of subincision. The patterning of both the 8-class system and subincision not only links Wardaman social practice with peoples to the south and west, but also sets them apart from peoples to the north and north-east, where both subincision and the 8-class system are not practised.

With respect to trade, little information is available. It is assumed that given the widespread interactions between Wardaman people and those to the south and west, both material goods and ideas, and with them stylistic conventions, have been extensively shared (see below). Items traded include reed/bamboo spear shafts from the Daly River to the northwest of Wardaman country, in return for stone spear points (Riley Birdun, Wardaman man, pers. comm., 1989). Ground stone axes made from greenstone have been located on the surface of Wardaman sites. Visual inspection of these axes points to an original Western Australian source, although more detailed petrological analysis, planned for the near future, may pinpoint the source more precisely. In short, the available evidence, as limited as it is, points to widespread contacts with peoples to the west and south.

As will be argued below, these interactions have resulted in the diversification of rock art styles in specific locations, whilst at the same time standardising artistic conventions within the broader interacting sphere. The region is set apart in terms of rock art from northern regions, where other forms of rock art (especially x-ray art) are common, and we believe that this geographical separation of artistic conventions reflects broader issues centring upon the struc-

ture of alliance networks and patterns of inter-regional interaction.

YINGALARRI ROCK PAINTINGS

The rock art of the Yingalarri region analysed below was recorded in 1988 during the first season of the Lightning Brothers Earthwatch Project. In the field, the rock art was extensively photographed and sketched with annotated drawings of each picture being undertaken. The ensuing preliminary classification presented in this paper was constructed by allocating each picture a *technique* category (Y-axis) and a *formal* category (X-axis) (Fig. 2). The current paper is concerned purely with a preliminary examination of the *technique* characteristics of the rock paintings from the region.

The formal characteristics of the paintings of the Yingalarri region are extremely varied. By far the most numerous are anthropomorphs (43.2%), with zoomorphs (28.9%), abstract designs (23.9%), boomcrang-forms (0.5%), track-forms (0.7%), and images of contact (European) objects (0.8%) also present. In this preliminary analysis, 45 motif forms have been identified (see Appendix 1), 33 of these consisting of biomorphic forms (anthropomorphs and zoomorphs). These can be divided into eleven painting *technique types* (Fig. 2):

- A: *linear*. These include 'stick figures' and other, non-area paintings. These are rare and very different from the 'stick figures' documented from the Hammersley Ranges to the south-west (Walsh, 1988) and those of the earlier periods of the Arnhem Land regions to the north (Chaloupka, 1984; Lewis, 1988; Brandl, 1973) (Fig. 3);
- B: *enclosed linear*, defined as linear motifs (Type A) enclosed by an outline. Extremely rare and not known from elsewhere (Fig. 4);
- C: *outlined*; very common and widespread throughout Wardaman country and beyond, especially to the west and south, including the Victoria River region all the way to Keep River and further west in Western Australia (Lewis and Rose, 1988);
- D: *infilled*; very common, and found commonly throughout most of Australia, and especially the northern half of Queensland, the Northern Territory and Western Australia. Chaloupka (1984) has argued that similar paintings as some infilled biomorphs from the Yingalarri region have been found in late Pleistocene rock art in the Alligator Rivers region (but see Lewis, 1988) (Figs 5 and 6).
- E: *striped*. These include a range of longitudinally

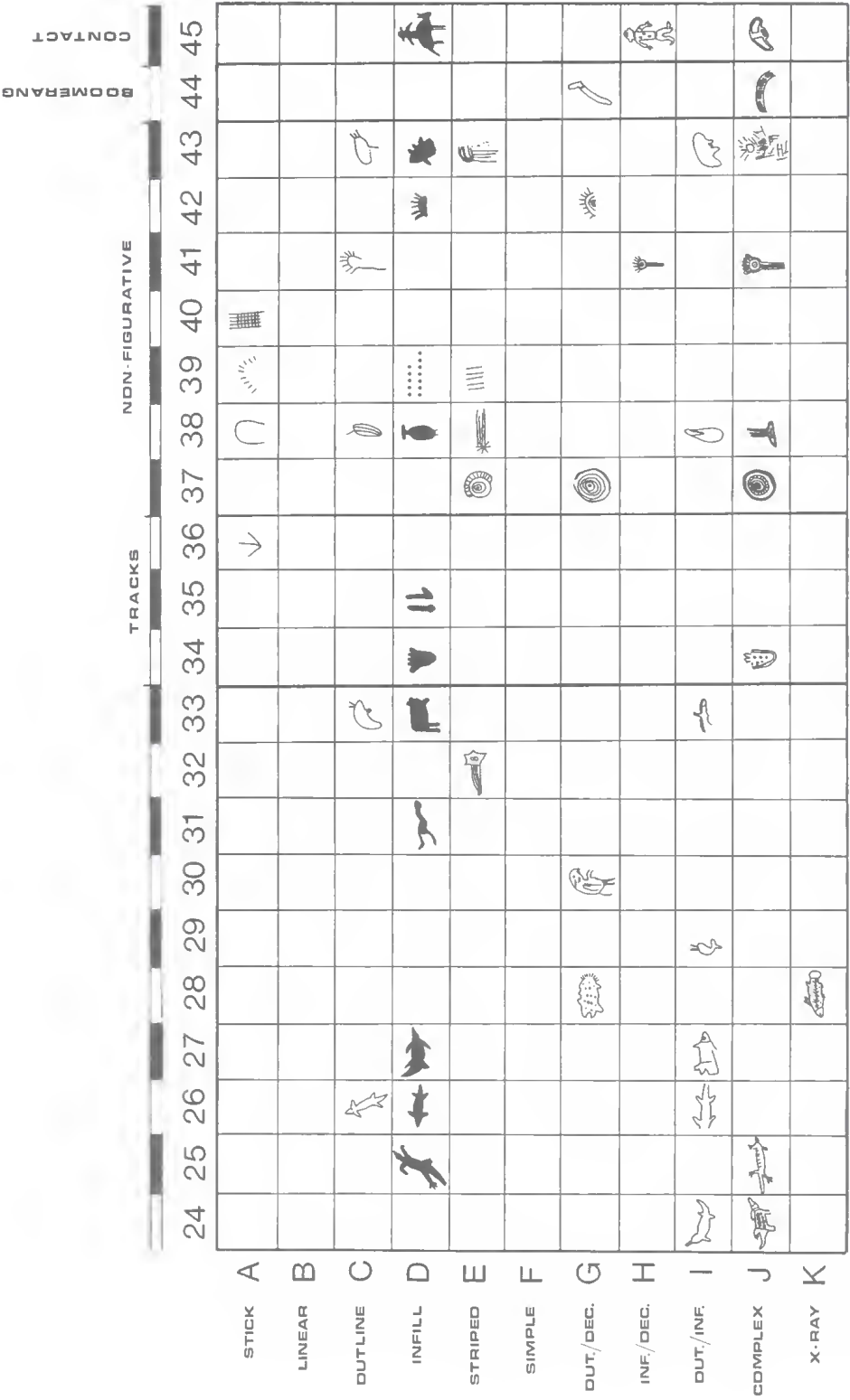


Fig. 2. cont. Preliminary classification of all non-indeterminate paintings from Yingalarri sites 2-49. X axis are *motif* forms. Y axis are *technique* types.

striped forms; again, these are extremely common throughout Wardaman country, and continue to appear further west along the Victoria River, Katherine River headwaters, Keep River, and into Western Australia (Walsh, 1988; Lewis and Rose, 1988). To the south, similar forms of striping are found at Emily Gap. Although present, they are uncommon in Katherine Gorge (Jawoyn country). They do not appear to occur further north (Fig. 7).

F: *sectioned*. These are paintings where sections of the image have been painted in different colours. All paintings in this category are zoomorphs, and features have been abstracted into angular forms (such as ears, tails, heads); These paintings have not been observed anywhere else, and they are rare even in the Yingalarri region, and could be the work of a single artist (Fig. 8).

G: *outlined/internally decorated*. These do not possess solid infilling, and occur repeatedly but in low numbers throughout Wardaman country (Fig. 6).

H: *infilled/internally decorated*; again, such paintings have been noted repeatedly but in low numbers throughout Wardaman country (Fig. 9). Infilled/internally decorated paintings have also been noted

to the west along the Victoria River and at Keep River, where they extend further west into Western Australia (Walsh, 1988; Lewis and Rose, 1988).

I: *outlined/infilled*; extremely common both in Wardaman country and beyond, especially to the west (pers. obs., 1988);

J: *outlined/infilled/internally decorated*; these paintings are often large and very elaborate. Internal decoration most commonly occurs as spots or dashes. They are commonly found to the west, including in country surrounding the Victoria River (Lewis and Rose, 1988), Daly River (Walsh, 1988, p. 196; pers. obs.), Fitzmaurice River (Walsh, 1988, p. 176) and beyond the Western Australian border (e.g. Walsh, 1988, p. 190-192). Unlike outlined/infilled/internally decorated designs from the Laura region of northern Queensland, however, the Yingalarri paintings do not include sectioned and short-striped figures (cf. Huchet, 1988) (Figs 9 and 10);

K: *x-ray*; such paintings are extremely rare in Wardaman country and to the west. Very similar x-ray paintings occur to the north, especially in Arnhem Land, where they are extremely common (Fig. 5).

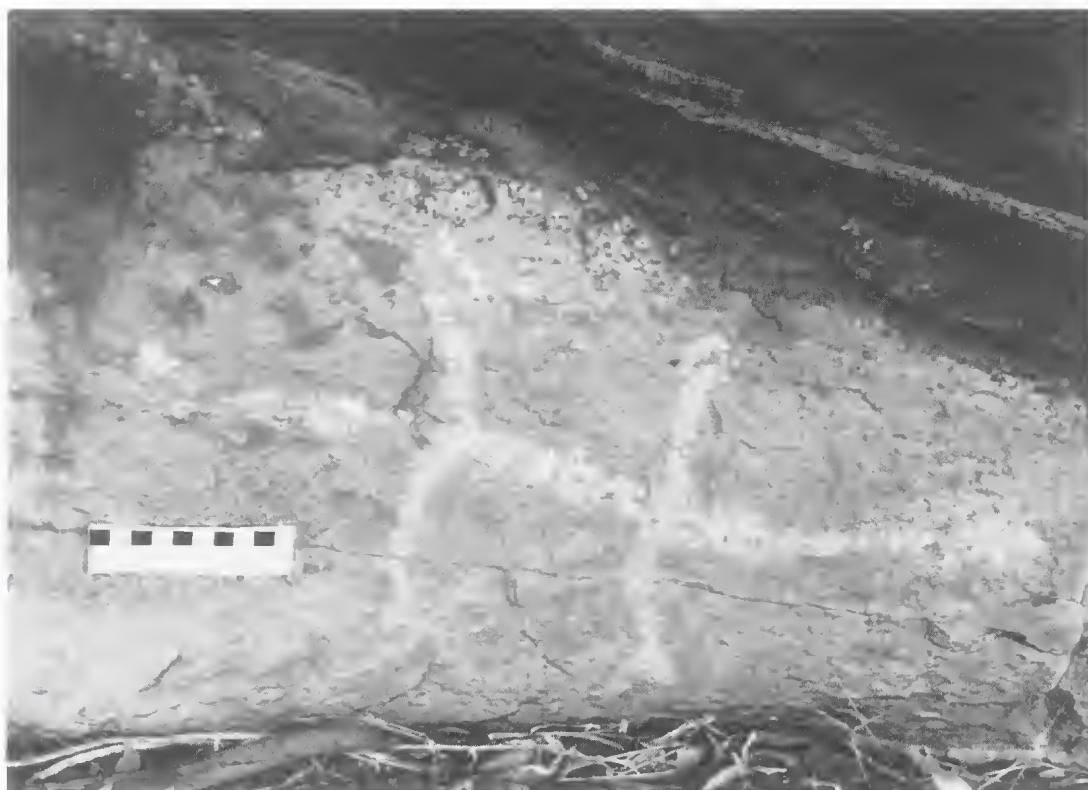


FIG. 3. Type A: linear painting.



FIG. 4. Type B: enclosed linear painting.



FIG. 5. Type D (infilled) anthropomorphic and Type K (x-ray) fish-form paintings.

In Table 1 the distribution of paintings from 48 sites is presented in terms of the A-K technique types.

The rock paintings from Yingalarri sites 2-49 are extremely varied both in terms of painting techniques (A-K above) and motif forms (Forms 1-45, see Appendix 1). Many of these techniques and forms are also found beyond Wardaman country, and this is especially so of all motif forms undertaken in techniques A to J (the non-x-ray pictures). More specifically, the most common painting techniques (techniques C, D, E, I and J) found in the Yingalarri region are commonly found to the west of Wardaman country, as far as Keep River, and for a considerable distance beyond. Walsh (1988) has even suggested that the Wandjina art of the Kimberleys is closely related to the art of the Victoria River region, including Wardaman rock art, implying significant cultural interactions between peoples of these regions in the past (see also Mulvaney, 1975, p. 261). Such interactions may have taken place through trade and/or extensive ceremonial networks, directly involving peoples from distant regions, but it is more likely that ideas were passed on from area to area through continued interactions between Wardaman peoples and their immediate westerly neighbours. In their turn, these neighbours passed on dominant cultural conventions further west in a chain of connections which, through time, served to standardise artistic conventions through space.

If this is so, it may be possible to identify painting styles which were used during specific periods of time in the past, and thereby identify specific episodes of inter-regional interaction in the past. We therefore pose the question:

Are there particular sites or groups of sites which are significantly different, on the basis of their rock art content (analysed here in reference to painting technique types)? If this is so, can we identify these differences as being due to a changing configuration of site use through time (changes in use of space)?

To help resolve these questions, two tests were undertaken in addition to an analysis of superimpositions. Firstly, an average linkage Cluster Analysis was undertaken to explore the way sites 2-49 compare to each other with respect to their rock art contents. The data set was transformed using Wright's VORTANS program (R. Wright, pers. comm., 1989) option 14, then 1 and 2. Option 14 gives equal weight by producing percentage frequencies. Option 1 centres the variables by subtracting the mean from each

object value (thus the variable results as a standard mean and is given equal weighting to all other variables). Option 2 transforms the matrix by dividing the variable by the standard deviation. This produces a variable with a variance (and a standard deviation of 1). This results in the variable having equal scatter. Options 1 and 2 combined produced a table of standard scores.

A hierarchical Cluster Analysis was performed using a Group Average clustering algorithm. The algorithm operates upon mean euclidean distance. The results of the Cluster Analysis show that Yingalarri sites 2-49 cannot be separated into *distinct* groups of sites on the basis of their rock paintings, although three loosely defined groups could be defined (Fig. 11). As the selective variables are unknown, however, a Principal Components Analysis was undertaken, firstly to try to isolate any *individual* sites (rather than groups of sites) which may show significant differences in their contents of rock art types, and to identify the techniques which contribute most to the isolation of sites as characterised by distinct configurations of rock art.

The results of the PCA on the variables show that all variables are loaded highly on the first component (first component accounts for 60.61% variability, second component for 15.42%). The distribution on the second component showed clustering of techniques G (outlined/internally decorated) and K (x-ray) together. Types A-E and H-J also occur together, whereas type F (sectioned) is isolated. General abundance cannot be attributable to this distribution as it is eliminated at the commencement of the program (as with the Cluster Analyses).

The sites tend to cluster around the centroid and, by virtue of this statistical insignificance, reveal little information. At a 0.5 significance level, only sites 2, 3, 21 and 22 show separation from the other sites (Fig. 12) (with site 4 being significantly different at a 0.49 level of significance). Such a patterning is particularly interesting in that these five sites contain more rock paintings than any other site in the sample (but this is not so of engravings). Techniques G and K (outlined/internally decorated and x-ray paintings) contribute most to this patterning.

Because the objects were so tightly clustered around the centroid, the orthogonal axes was rotated (Varimax rotation) to illuminate the possible structure further. The results of the rotation for the variable plot show that variables cluster in the same fashion as for the straight PCA. The only difference is that technique K becomes

negatively loaded, although relative to the rest of the plot this variable retains its original significance. Rotation served to further differentiate the distribution of the objects although the majority retained their original proximity to the centroid thus reflecting their failure to differentiate.

INTERPRETATION OF PCA

The PCA results are particularly interesting for a number of reasons. Firstly, the separation of sites 2, 3, 21 and 22 may be interpreted in a number of ways:

| SITE | PAINTING TECHNIQUE | | | | | | | | | | | ENGRAVED |
|-------|--------------------|---|----|-----|----|---|----|----|-----|----|---|----------|
| | A | B | C | D | E | F | G | H | I | J | K | |
| 2 | 8 | 1 | 3 | 8 | 5 | 1 | 1 | | 1 | 2 | | 1082 |
| 3 | 3 | | 3 | 18 | | | 5 | | 9 | 8 | 2 | 703 |
| 4 | 3 | | 5 | 11 | 5 | | | 2 | 13 | 4 | 2 | 2 |
| 5 | 2 | | | 2 | | | | 2 | 1 | 1 | | 17 |
| 6 | | | | | | | | | 1 | | | |
| 7 | | | | 3 | | | | | | | | 25 |
| 8 | | | | | | | | | | | | 5 |
| 9 | | | | | | | | | | | | 15 |
| 10 | | | | | | | | | | | | 40 |
| 11 | | | | | | | | | | 1 | | 1 |
| 12 | | | | 1 | | | | | | | | |
| 13 | | | | 1 | 2 | | | | | | | 4 |
| 14 | | | | | 2 | | | | | | | 1 |
| 15 | | | | | 1 | | | | | | | 2 |
| 16 | | | | | | | | | | | | 1 |
| 17 | | | 1 | 1 | | | | | | | | 19 |
| 18 | 1 | | | 5 | | | | | | | | |
| 19 | | | | | | | | | | | | 4 |
| 20 | 1 | 1 | 5 | 6 | 4 | | 1 | | 9 | 2 | | 288 |
| 21 | 9 | 2 | 13 | 39 | 8 | | 1 | | 27 | 12 | | 2152 |
| 22 | 5 | 2 | 13 | 29 | 11 | 1 | | 1 | 30 | 9 | | 1422 |
| 23 | 2 | | 3 | 4 | 6 | | | | 5 | | | 62 |
| 24 | | | | | | | | | | | | 7 |
| 25 | | 1 | 2 | 3 | | | | | | 1 | | 3 |
| 26 | | | | | | | | | | | | 51 |
| 27 | 1 | | | 5 | | | | | 1 | 1 | | 2 |
| 28 | | | | | | | | | | | | 5 |
| 29 | | | | 6 | 1 | | | | | | | 67 |
| 30 | | | | | | | | | | | | 26 |
| 31 | 4 | | | | | | | | | | | |
| 32 | 1 | | 6 | 5 | 2 | | 2 | | 3 | 2 | | 712 |
| 33 | | | | 1 | | | | | | | | |
| 34 | | | | 1 | | | | | 1 | | | |
| 35 | | | | 1 | | | | | | | | 7 |
| 36 | | | 2 | 3 | 2 | | | | | | | |
| 37 | 1 | | | | | | | | | | | |
| 38 | 1 | | 7 | 1 | 7 | | | | | | | |
| 39 | | | | 4 | 5 | | | | 2 | 1 | | |
| 40 | 1 | 1 | 1 | 9 | 4 | | 3 | | 7 | 1 | | 37 |
| 41 | | | | 1 | | | | | | | | |
| 42 | | | | 1 | | | | | | | | 5 |
| 43 | | | 2 | 6 | | | 2 | | 9 | 1 | | 25 |
| 44 | | | | 1 | | | | | | | | |
| 45 | | | | 1 | | | | | | | | |
| 46 | | | | 5 | | | | | | | | |
| 47 | | | | 1 | | | | | | | | |
| 48 | | | | 1 | | | | | | | | 1 |
| 49 | | | | 1 | | | | | | | | 2 |
| TOTAL | 43 | 8 | 66 | 185 | 65 | 2 | 15 | 16 | 119 | 46 | 4 | 6838 |

TABLE 1. Number of pictures in Yingalarri sites 2-49.

1] these sites are functionally different from the other sites, but roughly contemporaneous.

2] each or some of the painting techniques (A to K) used in the analysis pertains to a different point in time, and hence operates as a temporal marker. In containing more paintings and a broader range of techniques than any other site in the sample (except for site 4), sites 2, 3, 21 and 22 have therefore been painted upon during different points in time than the other sites.

3] a combination of 1] and 2] above.

4] the statistical separation of sites 2, 3, 21 and 22 is due to differences in the stability of rock surfaces (preservation of paintings). This point can be discounted as many of the sites included in this analysis are located in the same rock outcrops, facing the same directions, with similar configurations of the rock walls, location of driplines etc., but contain very different amounts of rock art.

For point 2] above to hold strength, we must be able to show that there has been a change in painting techniques through time. To investigate this issue, an analysis of the superimpositioning of different technique types were undertaken

(Table 2). Whilst not particularly numerous, painting techniques G and K appear to be preferentially superimposed over other paintings, and this may imply that in recent times there has been a shift in art styles, although this pattern may be a result of small sample size (and therefore needs to be further explored). Patterns of superimposition do not show significant changes in superimpositions of the most common painting techniques (A,C,D,E,I,J), although striped

| | | OVER | | | | | | | | | | | |
|-------|---|------|---|----|----|---|---|---|---|----|---|---|--|
| | | A | B | C | D | E | F | G | H | I | J | K | |
| UNDER | A | 1 | | | 1 | | | | | 5 | 3 | | |
| | B | | | | | 1 | | | | | | | |
| | C | 1 | | 1 | 1 | 2 | | | | 2 | | | |
| | D | 3 | | 10 | 5 | 3 | | 2 | | 6 | 4 | 1 | |
| | E | 3 | | 1 | 7 | 7 | | | | 8 | 2 | 1 | |
| | F | | | | | | | | | | | | |
| | G | | | | | | | | | | 1 | | |
| | H | | | | | 2 | | | | 1 | | | |
| | I | 2 | 1 | 6 | 11 | | 2 | 1 | | 10 | 8 | 1 | |
| | J | | | | 1 | 2 | | 2 | 2 | 2 | 1 | 1 | |
| | K | | | | | | | | | 1 | | | |

TABLE 2. Superimpositions by painting techniques.

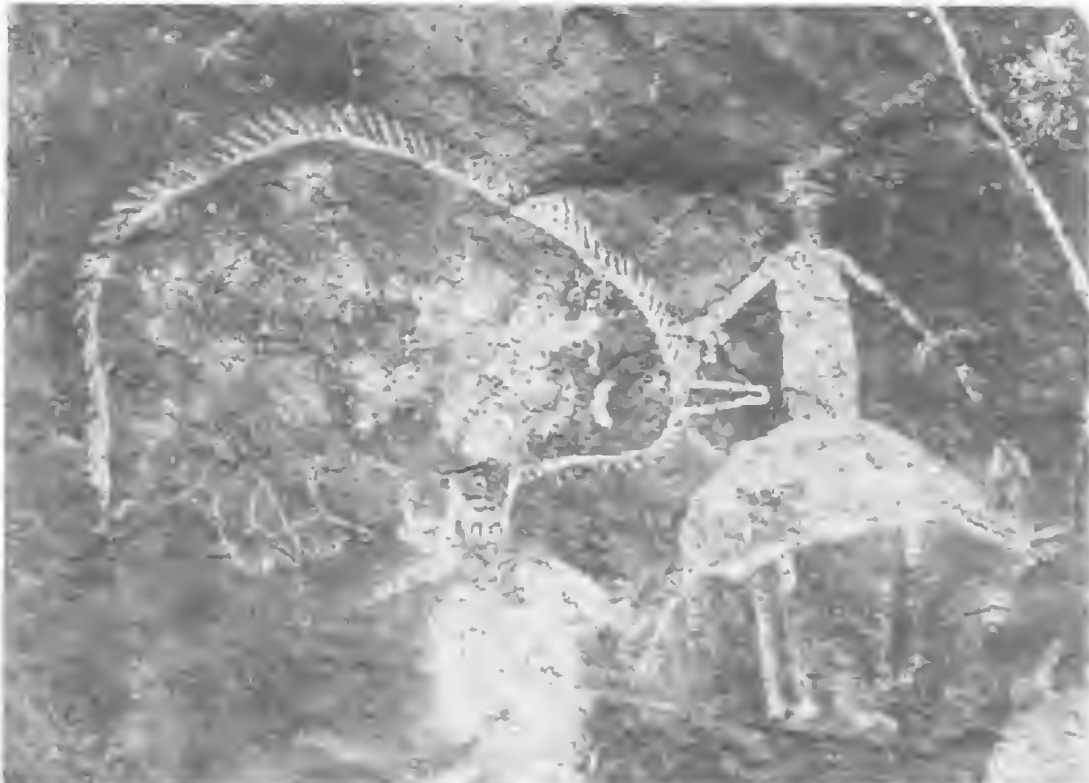


FIG. 6. Type D (infilled) contact image and Type G (outlined and internally decorated) zoomorphic painting.



FIG. 7. Type E (striped) paintings.

figures (type E) appear much more commonly *under* other paintings (especially outline/infilled ones) than *over* them (Table 2). These results, however, should be further explored by increasing the sample size, a project planned by the authors for the near future.

In short, four sites, Yingalarri 2, 3, 21 and 22 separate out as significantly different from the other Yingalarri sites on the basis of their paintings. These differences can be best explained by the fact that these sites contain more paintings than the other sites (with the exception of site 4), although sample size itself is not a contributing factor as all variables from each site were given equal weight. An examination of superimpositions in these sites has failed to locate any clear change in painting technique through time, although it is possible that longitudinally striped biomorphs are earlier depictions, whilst the x-ray and outlined-infilled paintings are relatively recent. The recent beginnings of x-ray paintings is supported by their fresh appearance, and this may reflect recent interactions with peoples from the north, where very similar x-ray (fish) repre-

sentations are common. Such paintings are not found to the south or west of Wardaman country.

In summary, we emphasise 5 points:

1) the Yingalarri paintings are dominated by biomorphic paintings, undertaken in outline, infill, outline/infill, outline/infill/internal decoration, or striped longitudinally. The latter in particular are found only in Wardaman country and to the south and west, with some very rare examples found in Jawoyn country. All other painting techniques are mostly found to the west, with the exception of some extremely rare x-ray paintings (mainly fish), which are characteristically northern influences.

2) Yingalarri sites 2-49 cannot be divided into distinct groups on the basis of the techniques used to make the paintings which decorate these sites.

3) Four sites separate-out as significantly different. These differences can be best explained by reference to site size: a) the four sites, having more paintings than any other site in the sample, may have witnessed more painting episodes than the other sites, and as such a more heterogeneous painting assemblage has resulted in these sites,



FIG. 8. Type F (sectioned) painting.

or b) this may purely be attributable to significant differences in site function.

4) The surviving paintings do not show any conclusive evidence of changing techniques through time. All techniques are roughly contemporaneous, although some techniques *may* indicate recent influences from the north (x-ray paintings) (see also Mulvaney, 1975, p.273).

5) From 4) above, we suggest that the paintings observed reflect largely contemporaneous influences from numerous sources by local populations. The art may reflect more the particular painting styles of *individuals* who's styles have differentially developed via influences from numerous places, rather than representing a strict cultural convention that can be specifically identified as 'The' Wardaman rock painting style (as distinct from neighbouring 'styles').

In a later paper, these issues will be further addressed by us in a more detailed analysis of the paintings. This analysis includes both an investigation of the distribution of *motif forms* (see Appendix 1) and particular stylistic elements

(e.g. type of internal decoration). We present below a preliminary discussion of the above points in relation to documented Wardaman inter-regional relations.

DISCUSSION

Perhaps the most influential debate in the history of Australian prehistory has fallen under the guise of the 'Intensification Debate' (Lourandos, 1983; Beaton, 1983). It has recently been the subject of focused attention, and represents a critical stage in Australian prehistory as it has addressed a number of questions which have re-oriented the nature of archaeological enquiry in this country. It has not only brought the issue of intensification, for long a major source of discourse in international circles, to Australia, but more importantly, it has brought it out of its traditional 'hunter-gatherer to farmer' frame of reference to one addressing hunter-gatherers as capable of 'intensifying' without venturing out of the hunter-gatherer mode of production. In



FIG. 9. Type H (infilled and internally decorated) zoomorphic painting (uppermost painting) and Type J (outlined, infilled and internally decorated) zoomorph (lowermost painting).



FIG. 10. Type J (outlined, infilled and internally decorated painting).

other words Aboriginal society is not seen as a static socio-economic network, but rather is referred to as a *dynamic* socio-ideological system, subject to the same kinds of influences characterising farming or agricultural societies. The questions asked of prehistoric Aboriginal life are now more directed at understanding the nature of inter-personal relations (i.e. at the power structures which mediate the maintenance of social traits and changes there-in), questions which traditionally have been the realm of archaeologists studying more complex (structurally differentiated) societies.

It is in questioning the nature of inter-personal relations that we may best attain information on the social forces which serve to both re-direct and maintain trajectories of change.

Lourandos (1983, 1984) has recently taken up these issues with reference to Australian prehistory. He has argued that in many parts of Australia, and in the Victorian southwest in particular, the very *structure* of alliance networks

has witnessed a fundamental shift during mid- to late-Holocene times. These shifts, he believes, are visible archaeologically in the following ways:

- 1] there is an increase in use of individual sites;
- 2] there is an increase in the rate of establishment of new sites;
- 3] there is a diversification and increase in the complexity of resource management strategies;
- 4] there is an increase in the use of marginal environments (see also Flood *et al.*, 1987; David, 1987; Walters, 1989);
- 5] the development of widespread trading networks takes place.

Together, Lourandos sees these changes as reflecting an *intensification* of socio-economic variables, where these can refer to 'economic as well as social variables which may themselves bear directly or indirectly upon economy' (Lourandos, 1983, p. 81).

Yet in spite of the far-reaching implications of

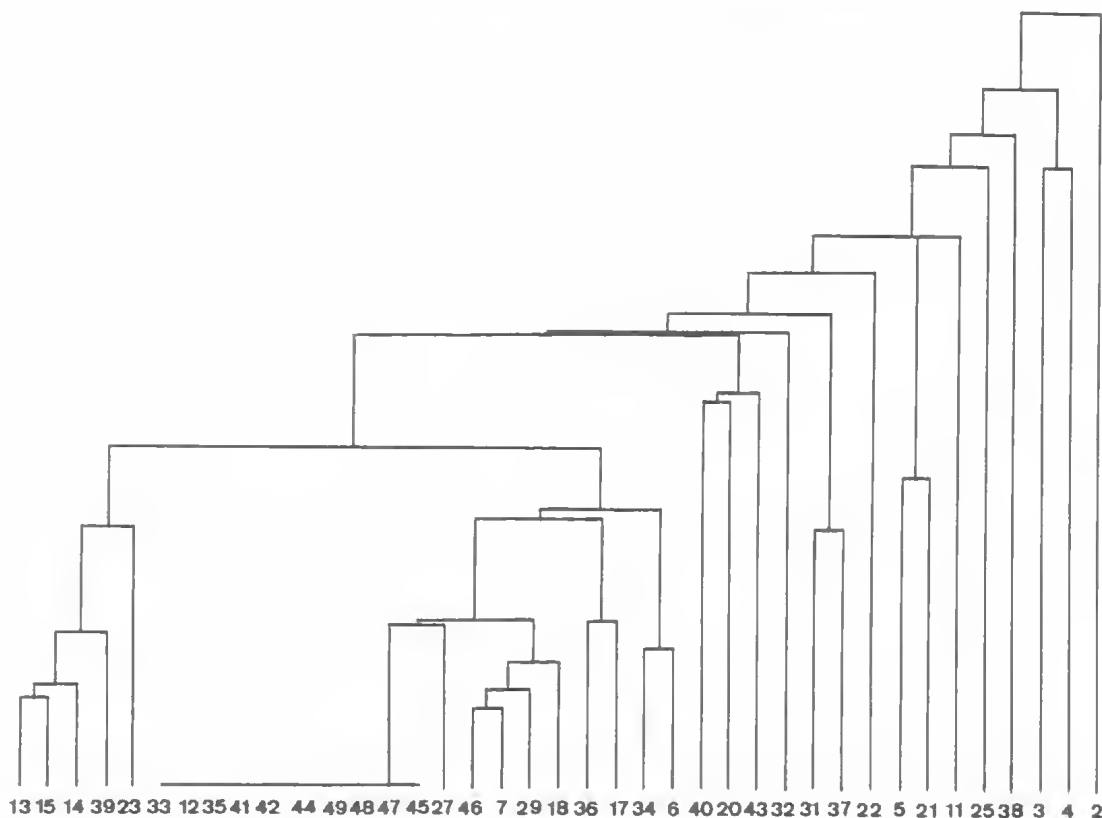


FIG. 11. Average Linkage Cluster Analysis, showing site numbers.

Lourandos's work, it is surprising that little attempt has yet been made to investigate the distribution of, and changes in, particular stylistic conventions, and this is especially so of rock art. One notable exception has been Lewis (1988), who has argued that during the height of the last glaciation, an extensive interaction network existed throughout the Bonaparte catchment, which extended from the Kimberleys to the Victoria River, Arnhem Land and beyond (including Wardaman country). In relation to climatic changes (especially the development of wetlands) and population increases during the late Holocene, Lewis (1988) sees the rock art of northern Australia becoming more regionalised during the last 2000 years or so. Although we agree with the directions of Lewis' (1988) work, we have argued in this paper that the patterning of stylistic conventions in Wardaman rock paintings does not reflect any significant changes in this region, and we therefore argue that there have been no *major* changes in inter-regional alliance networks for the period documented by the region's surviving rock paintings. We briefly discuss the probable antiquity of this body of rock art below, situating it in a broader temporal sequence. We

conclude below with some implications for the Intensification question.

CONCLUSION

A number of factors lead us to believe that most, if not all, of the *surviving* rock paintings from the Yingalarri region are of relatively recent age (late Holocene):

1) The sandstones of the region are soft and friable, unlike those of the Kombolgie Formation to the north (where much of the Kakadu rock art is located). Chaloupka (1984, p. 53) notes, for instance, that sandstones found on the Arnhem Land Plateau are far more stable than those found in Wardaman country. The conditions for preservation of long-standing paintings are not widespread in Wardaman country.

2) Despite the elaborate, figurative nature of Wardaman rock paintings, no evidence of extinct fauna has yet been found in the region. This is so despite the fact that 109 sites and 3379 paintings have so far been systematically recorded. This is in direct contrast to the situation to the north, where numerous examples of extinct fauna (i.e. Thylacines) have been found (Lewis, 1977).

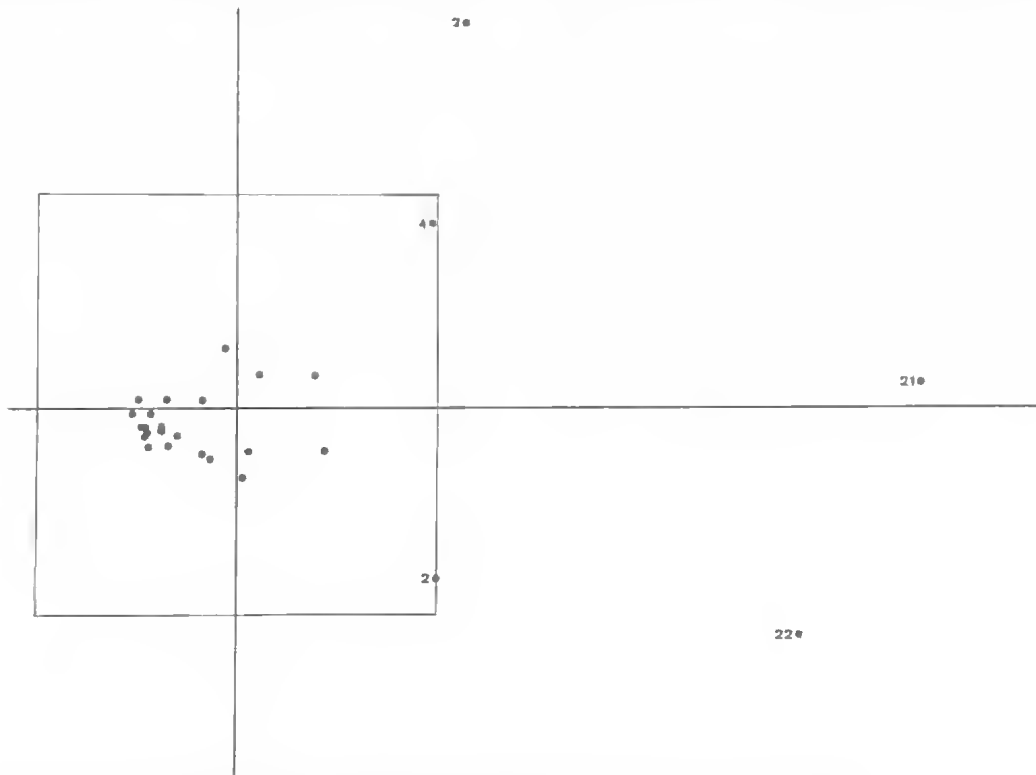


FIG. 12. PCA on sites Yingalarri 2-49, showing 0.5 level of significance (boxed area).

3) Compounding 1) above, dramatic increases in precipitation, and increases in conditions promoting exfoliation of rock surfaces, before 3000 years ago, would mitigate against the stabilisation of rock surfaces in friable sandstone outcrops.

4) Excavations of two sites at Yiwarlarlay have shown:

a) dramatic increases in occupational intensity, along with presence of ochre, in late Holocene levels;

b) the presence of exfoliated, painted wall cortex *only* in very recent times.

5) Excavations at Menng-e-ya (near Yingalarri) have revealed dramatic increases in occupational intensity and in amounts of ochre in late Holocene layers.

6) Paintings *always* overlie patinated peckings when superimpositions occur. No example of peckings over paintings are known to us despite the fact that 18,354 pictures (engravings, paintings, stencils, prints) have been recorded from Wardaman country.

7) The creation of engravings have been dated stratigraphically to over 5000 years by Mulvauey (1975) at the Yingalarri 1 (Ingaladdi) site. However, it is likely that some of these (abraded grooves especially) have been created continuously for long periods of time, as both Merlan (1988) and Flood *et al.* (in press) document the recent making of abraded grooves by Wardaman people. No examples of paintings underlying abraded art have been observed.

8) The fragility and therefore instability of paintings is re-enforced by the fact that numerous clear paintings from Yingalarri which were photographed in the 1960s have since disappeared to the point of total disintegration (mainly fading).

As a result of these observations, we suggest that the paintings from the Yingalarri region are mostly, if not entirely, relatively recent (late Holocene). Furthermore, as is shown in the distribution of superimpositions (Table 2), no major temporal changes in painting techniques have been noted for sites 2-49. As a result of these observations, we suggest that there is no evidence for any major shift in the distribution of painting conventions in the Yingalarri region during the late Holocene. By implication the alliance networks observed ethnohistorically from the broader region (which have been central to the dispersal of painting conventions throughout the broader region) have been operating perhaps throughout the late Holocene period

(and, as previously argued by Lewis [1988], linked the Wardaman region with the Victoria River and western areas). In effect, we suggest also that the seeds to the alliance networks documented during ethnohistoric times were already in place during or before the *mid*-Holocene. We say this as a result of the great similarities between the patinated engravings of what is today Wardaman country (some of which have been dated stratigraphically at Yingalarri 1 to over 5000 years BP), and those to the south and to the west. The similarities in the early engravings may even document a system of alliance networks far broader than that documented ethnohistorically, as the 'early' engravings are stylistically similar to those of Keep River and beyond to the west, and to those of numerous parts of South Australia (e.g. Meadow's Bluff) to the south. Engravings are considerably rarer in the north and, contra Lewis (1988), this may imply considerable antiquity for an Arnhem Land-Victoria River cultural discontinuity. Although these issues will form the subject of a separate study, we suggest that early Holocene socio-organisational systems were more open than those observed ethnohistorically, perhaps stressing the maintenance of social relatedness, a feature of arid and semi-arid life which Myers (1986, p. 164) has argued is central to survival and everyday life in central Australia. Further assessment of these questions will, however, have to await a more detailed analysis of the rock art found in both what is today Wardaman country and beyond.

ACKNOWLEDGEMENTS

We would first and foremost like to thank the many Wardaman people who showed us and allowed us to record their sites. Special thanks go to Ruby Alison, Riley Birdun, Juley Blatcher, June Blatcher, Daisy Gimin, Lily Gingina, Queenie Ngabijiji, Tarpot Ngamunagami, Elsie Raymond, Oliver Raymond, Barbara Raymond, Michael Raymond, Lindsay Raymond and Tilley Raymond.

We would also like to thank the numerous Earthwatchers from the 1988 season for contributing so much to this project, and to Francesca Merlan for sharing so much of her anthropological knowledge with us.

For useful comments and discussions, our thanks go to Ian McNiven, Mike Morwood, Harry Lourandos, Darrell Lewis, Francesca Merlan, Su Higgins, Bryce Barker, and John Clegg,

whilst we are extremely grateful to Richard Wright for making his VOTRANS program available to us.

LITERATURE CITED

- BEATON, J. 1983. Does intensification account for changes in the Australian Holocene archaeological record? *Archaeology in Oceania* 18: 94-97.
- BRANDL, E. 1973. 'Australian Aboriginal Paintings in Western and Central Arnhem Land'. (A.I.A.S.: Canberra).
- CHALOUPKA, G. 1984. 'From Palaeoart to Casual Paintings'. (Northern Territory Museum of Art and Sciences: Darwin).
- DAVID, B. 1987. 'Chillagoe: from Archaeology to Prehistory. Contributions to a late Holocene prehistory of the Chillagoe region'. (Unpublished M.A. thesis, A.N.U., Canberra).
- DAVIDSON, D.S. 1935. Archaeological problems of Northern Australia. *Journal of the Royal Anthropological Institute* 65: 145-83.
- FLOOD, J., DAVID, B., AND FROST, R. in press. Dreaming into Art: Aboriginal interpretations of rock engravings, Yingalarri, Northern Territory (Australia). In Morwood, M. (ed.), 'Ethnography and Art.' (preliminary title). (A.I.A.S.: Canberra).
- FLOOD, J., DAVID, B., MAGEE, J. AND ENGLISH, B. 1987. Birrigai: a Pleistocene site in the southeastern highlands. *Archaeology in Oceania* 22: 9-26.
- HUCHET, B. 1988. Striped anthropomorphs from Laura. (Unpublished paper presented at the A.A.A. conference, Armidale).
- LEWIS, D. 1977. More striped designs in Arnhem Land rock paintings. *Archaeology and Physical Anthropology in Oceania* 12 (2): 98-111.
1988. 'The Rock Paintings of Arnhem Land, Australia: social, ecological and material culture change in the post-glacial period'. (BAR International Series 415: Oxford).
- LEWIS, D. AND ROSE, D. 1988. 'The Shape of the Dreaming: the Cultural Significance of Victoria River Rock Art'. (A.I.A.S.: Canberra).
- LOURANDOS, H. 1983. Intensification: a late Pleistocene-Holocene archaeological sequence from southwest Victoria. *Archaeology in Oceania* 18: 81-94.
1984. 'Changing perspectives in Australian prehistory: a reply to Beaton. *Archaeology in Oceania* 19 (1): 29-32.
- MCCARTHY, F. 1939. 'Trade' in Aboriginal Australia, and 'trade' relationships with Torres Strait, New Guinea and Malaya. *Oceania* 9 (4): 405-38, 10: 80-104, 171-95.
1967. 'Australian Aboriginal Stone Implements'. (Australian Museum: Sydney).
- MERLAN, F. 1988. The interpretive framework of War-daman rock art: a preliminary report. (Paper presented at the 1st AURA conference, Darwin).
- MULVANEY, D.J. 1975. 'The Prehistory of Australia'. (Penguin: Ringwood).
- MYERS, F. 1986. 'Pintupi Country, Pintupi Self' (A.I.A.S.: Canberra).
- SPENCER, W.B. 1914. 'Native Tribes of the Northern Territory of Australia'. (Macmillan: London).
- STANNER, W.E.H. 1959-63. 'On Aboriginal Religion'. (Oceania Monograph: Sydney).
- WALSIL, G. 1988. 'Australia's Greatest Rock Art'. (E.J. Brill/R. Brown & Ass.: Bathurst).
- WALTERS, I. 1989. Intensified fishery production at Moreton Bay, southeast Queensland, in the late Holocene. *Antiquity* 63: 215-224.

APPENDIX 1

Description of the 45 Motif Forms identified from sites Yingalarri 2-49 in this preliminary classification system (see Fig. 2). In the descriptions below, the number corresponds to the Motif Form number as is shown on Fig. 2, and this is followed by a key word description (e.g. 1] *elongated anthropomorph*).

- 1] *elongated anthropomorph*, where length of painting is at least twice its width.
- 2] *split anthropomorph*, where the image is either split along the entire length of the body, or at its junction with the arms (giving the impression of an absence of torso).
- 3] *elongated limbed anthropomorph*, where arms/legs are elongated, often showing presence of joints (elbows, knees).
- 4] *detailed anthropomorph*, where facial and body features are detailed (e.g. eyes and mouth especially).
- 5] *split face anthropomorph*, where the face is split into two halves.
- 6] *dynamic anthropomorph*, where body features are standardised into geometric elements (e.g. square head, oval breasts, circular elbows), and there is a total absence of any detail of internal features (such as eyes, mouths, etc.).
- 7] *generalised anthropomorph*, where only the basic body shapes are shown.
- 8] *other anthropomorph*. This category refers to one-off anthropomorphs that do not conform to 1]-8] above. Further surveys will, hopefully, increase the sample sizes of these pictures, and each form will

- be treated separately and further described in our final report.
- 9] *indeterminate anthropomorph*, where the picture can be identified as an anthropomorph but is too faded or damaged to further identify.
 - 10] *macropod*, where the picture has the formal characteristics of a mammalian quadruped, and where the fore-limbs are noticeably shorter than the hind-limbs.
 - 11] *canid*, where the picture has the formal characteristics of a mammalian quadruped, where the limbs are all of approximately equal size, and where ears and tail resemble those of dogs.
 - 12] *other quadruped*, where the picture does not conform to either 10] or 11] above.
 - 13] *emu*, where the body is extremely large relative to the head, and where the formal characteristics of the image resemble those of birds.
 - 14] *long-beaked bird*, where the beak-length is pronounced, and the image has the formal characteristics of a bird.
 - 15] *generalised bird*, where the image has the formal characteristics of a bird, but where no other distinct feature can be identified.
 - 16] *owl*, where the picture consists of a generalised oval body with the head above it, and where the head is divided into two equal halves.
 - 17] *short bird*, where the image is of a biped whose length is approximately equal to its width, where the picture is relatively small (50cm or less in length), and where the legs emanate from the side of the body (rather than from underneath it).
 - 18] *other bird*, one-off pictures where the image resembles a bird, and where specific features distinguish it from 13] to 17] above.
 - 19] *snake*, being elongated images with identifiable heads and/or tails.
 - 20] *eared snake* As with 19] above, with the addition of one or two ears above the head.
 - 21] *turtle*, being four-limbed zoomorphs with head and sometimes tail emanating from a circular body.
 - 22] *echidna*, having the formal characteristics of echidnas. There is a linear extension protruding from a roundish head when in plan view, whilst the linear extension emanated from the body when in profile.
 - 23] *indeterminate echidna/turtle*, being pictures which are too faded or damaged to determine whether they belong to category 21] or 22].
 - 24] *crocodile*, having the formal characteristics of crocodiles, and where head is pictured as relatively circular and followed by an elongated 'snout'.
 - 25] *lizard*, similar to 24] above, but where the head is elongated.
 - 26] *indeterminate crocodile/lizard*, where the picture resembles 24] and 25] above, but where it cannot be identified as either one or the other.
 - 27] *indeterminate crocodile/lizard/fish*, where the image cannot be differentiated between 23], 24] above or 28] below.
 - 28] *fish*, where the picture resembles a fish (presence of fins, tail and head).
 - 29] *bat*, where image resembles a bat/flying fox. These are either upright or up-side down. These are small, generalised bipedal bodies with heads and relatively large ears.
 - 30] *unidentified quadruped*, being a four-legged and tailed zoomorph whose formal characteristics do not resemble those of any known animal.
 - 31] *unidentified biped*, being a two-legged biped whose formal characteristics do not resemble those of any known animal.
 - 32] *star zoomorph*, being a tailed-image with a star-shape in head position, and where two circles occur in the position of the eyes.
 - 33] *indeterminate zoomorph*, where degree of fading and/or damage precludes it from further identification.
 - 34] *foot*, being a toed track-form resembling the shape of a human foot.
 - 35] *macropod track*, being a track-form which resembles (either singly or in pairs) the tracks of macropods. Side toe(s) must be present.
 - 36] *bird track*, being three- or four-pronged pictures resembling the shape of bird tracks, and where the meeting point of the prongs must be angular.
 - 37] *concentric circles*, including single circles.
 - 38] *geometric non-figurative*, these being one-off geometric non-figurative pictures which do not conform to 39], 40], 41] or 42] below.
 - 39] *tally-forms*, being series of dots or parallel lines.
 - 40] *grids*.
 - 41] *matchsticks*, being geometric linear shapes with circular 'head' above them. These sometimes have radiating lines emanating from the 'heads'.
 - 42] *half-suns*, being geometric semi-circles with radiating lines.
 - 43] *other non-figurative*, being amorphous non-figurative designs.
 - 44] *boomerang-shapes*, being curvilinear pictures resembling boomerangs, or hooked curvilinear pictures.
 - 45] *contact images*, being pictures having formal characteristics of post-contact items (e.g. guns, person on horse).